Genetic Engineering Techniques: Recent Developments

Edited by P.C. Huang, T.T. Kuo and R. Wu

Academic Press; New York, 1982

360 pages. $28.50

This volume contains the proceedings of a Symposium held in Taiwan in January, 1982. The material is divided into six sections. The first four describe the basic techniques, cloning, expression and potential of recombinant DNA; the fifth is a summary by P.C. Huang and the sixth contains the protocols of a laboratory workshop held for the participants.

For a book of this size, the editors have tried to cover too much ground. Each of the main sections consists of three or four articles which do not provide a comprehensive summary of the field. An editor's introduction and discussions of each section would help to put the papers into perspective. While many of the articles make interesting reading, they do not form a coherent collection. Two papers are written from a personal viewpoint, those by James Wang on structural studies of DNA and Thomas Shih on *ras* gene expression. Both take an historical perspective; had more contributors used this approach, the overall value of the book would have been enhanced.

The last section gives practical details of assorted techniques, such as monoclonal antibody production and plasmid preparations. All of these can be found elsewhere in the literature. Consequently the last sixty pages are wasted, particularly since they comprise protocols designed for the workshop participants rather than for general use.

The problem with this book is that it is no more than a very accurate but unedited record of one of numerous genetic engineering symposia held during the last few years. No attempt has been made to mould the raw material into a format useful to the general reader. For a volume in typeface, the unforgiveable publishing delay renders much of this work out of date. The opening chapter from Ray Wu's group, for example, includes details of his rapid sequencing technique, which has been superceded by a more recent publication, from the same workers, of an improved vector and sequencing strategy. And as the information presented is now nearly two years old, anyone interested in current practice in genetic engineering could do better than to buy this volume.

Vanessa Smith and Kevin Davies

Diving and Asphyxia

by Robert Elsner and Brett Gooden

Cambridge University Press; Cambridge, London, New York, New Rochelle, Melbourne, Sydney, 1983.

x + 168 pages. £25.00, $49.50

This excellent short book brings together the rather scattered literature on physiological adaptation to breath-holding diving in a variety of animals including man. Additionally it presents the argument that the complex response to cessation of breathing and face immersion, the diving response, is an extreme example of the more general response to asphyxia which is present in all complex animals.

The major component of the book considers the diving response in marine mammals; this is reflected in the fact that over half of the figures relate to seals and porpoises. The area is well

reviewed and illustrated, and in reading it one cannot help but be impressed by the ingenuity employed by some workers. For example one group, in order to avoid the possibility that stress resulting from restraint would distort the cardiovascular response to diving, initially trained a sea lion to hold its nose underwater for a food reward. They then implanted a flow transducer around a major blood vessel and eventually recorded the cardiovascular response to 'voluntary' nose immersion in the unrestrained animal.

The section dealing with human breath-holding diving is particularly useful as it brings together the information available on the working divers such as the Ama of Japan and Korea and data obtained in laboratory investigations on volunteers. Some of the information obtained by predominantly non-invasive methods such as plethysmography compares well with figures obtained by invasive methods in marine mammals. Indeed these similarities indicate clearly that the diving response is present in terrestrial as well as marine mammals. The development of the theme that the diving response is part of the broader response to asphyxia is well handled throughout the book. However, the contrast between the well-documented experimental data on the former and the rather more diffuse and descriptive information on the latter is apparent.

The book has an extensive reference section and maintains the high standard of presentation expected of the Monographs of the Physiological Society.

M.W.Robins

Biochemical Neurology

by M.J. Eadie and J.H. Tyrer

MTP Press Limited; Lancaster, 1983

266 pages and index. £24.95

As its title implies this book deals with a range of biochemical abnormalities that cause, or are associated with, neurological disease. Neurology has been ripe for a comprehensive single volume text of this nature for some time and on the whole Biochemical Neurology fills the gap very well. Written by two distinguished neurologists for clinicians rather than biochemists, the approach is nevertheless primarily biochemical, with the subject matter organised in relation to disorders of biochemical processes and affecting classes of molecules rather than to diagnostic categories or the symptoms of neurological disorder. This approach is eminently sensible because many of the clinical symptoms that go to make up a diagnosis are common to several disorders.

In the text the various biochemical disorders are grouped under three broad and somewhat arbitrary chapter headings, namely 'Energy pathway and metabolic intermediate pool', 'Metabolism of larger molecules' and 'Inorganic ions'. (A final chapter falls outside this classification since it deals with disturbances of synaptic transmission.) Although this approach seems at first single simplistic and results in excessively long chapters (the first one occupies half the book!) there is within the main chapters extensive subdivision and a system of numbering paragraphs that greatly facilitates cross-referencing. The relevant biochemical background is introduced at an elementary level alongside the treatment of each biochemical disorder. Thus the section entitled 'Disorders of pyruvate metabolism' includes figures illustrating the major pathways of pyruvate metabolism. In general the description of the biochemical abnormality is then followed by short paragraphs on the aetiology, structural pathology, clinical features, diagnosis and therapy of the condition.

The strength of this book lies in its excellent treatment of disorders of bodily biochemistry with neurological sequelae, such as inborn errors of